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An

Inaugural Essay

on the

Medical Effects

of

Light and Darkness

by

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Such, naturally, are the Dispositions of Man that in our constant anxiety and desire for things, novel but comparatively unimportant the greatest and most instinctive of our enjoyments, because recurring daily, are passed over unnoticed — forgotten as perishable to all Comfort and Happiness and because commonly and constantly continued to us, the value of the Gift is not estimated nor the munificence of the Donor properly acknowledged —

In attempts to account for the various Phenomena of Nature, it is not less amusing than surprising to observe how frequently the more apparent Causes are skipped over and how Arcana ransacked for Arguments to make probable some favourite Theory —

In like manner, in Medicine, who can not admire the ingenuity of the numerous Theories advanced to explain the different Phenomena of Diseases and the modes of Treatment accommodated to each of them — In all, however, it has appeared to me, that while from every Kingdom Remedies are derived, very little, I may say, no attention has been paid to the Medical Effects of Light and Darkness — some observations on which I propose as the Subject of the following short Essay —

I descant on these many and various effects I will not attempt, because too extensive and be-cause unconnected with that view which I pro-pose to take of the Subject - No one doubts it is certain which lies in the Light is insensi-ble to its effects -

In the Treatment of this Subject, the consider-ation of Light as constituting a part of the ele-ment of Nature, I shall first attempt - the pro-priety of this addition to the Materia Medica Dr. Barton incorporates in his Lectures on the Ma-teria Medica -

That Light is essential to those various Principles of the animal Economy constituting perfect Health may I think be inferred from the pale and meagre appearances of those whose constant occupations are in Cellars, Sub-terraneous Caverns and other Places impervious by the Solar Influence - That other Causes combine in inducing this Effect I do not deny, but that the deficiency of Light has a direct Influence and influence, indirectly, through every Cause - this perfect insolation when again submitted to its action incontestably proves -

So confidently does Dr. Darwin ~~the~~ propose the Colour of the Skin is influenced by Light that he deems it practicable by confinement in the Dark

or by a removal to more Northern Climates, to undergo perfectly white the Copper Coloured Natives of Sunny Countries. And as evincing of this effect I beg leave to quote the following Passages from a Book entitled the Philosophy of Medicine by an Anonymous Author.

Animals, says he, deprived of Light or living in dark Places lose their Colour and become white as is observable in Arctic Animals, during the long Nights in the Countries near the Pole. I have observed it also, continues he, in Animals that inhabit the Alps and which conceal themselves the greatest part of the Year in subterraneous Dwellings. Mice kept in a Cage in a very dark Room become white.

Indeed to ascertain the Influence of Light in occasioning the variety of Colour in the Human Species, it will only be necessary to consider the Complexions of the different Countries, and we shall find them more or less dark as they approach to or recede from the Line. Thus for instance the French who inhabit a more southern Climate are darker in their Complexion than the Inhabitants of Great Britain. The Spaniards more southerly are browner than they &c.

The debility, and emaciation of Persons Letteraneously employed demonstrates, I think,

factorily, the effect of its absence on the general Health — The partial and sometimes entire deprivation of this indispensable Nutriment in Dungeons, Cells and other gloomy Places of confinement, with the Damp, unwaved air in consequence of its exclusion, explain the Cause of the very great injury done to the Health of the Prisoners there confined and also the reason why the mean Sorts of Houses in Great Britain darkened on account of the very heavy Window Tax exhibit a race of pale and unhealthy Inhabitants —

Upon a Subject interesting like this a very surprising few Experiments have been made to ascertain the effects of Light as they respect the absolute necessity of the addition of this Nutriment to every other, for the maintenance of firm Health, and as between the Animal and Vegetable Kingdoms there exists an analogy strikingly great — a few Examples of its effects on the latter will, I hope be admitted as demonstrating its very essential importance to the former —

That Light is requisite to the vegetation of Plants is acknowledged, I believe, by all Botanists and certainly proved by these very

not partially lost — [illegible]
turn always towards the Window and that
even in close Woods grow taller than in
open Grounds, for the purpose of receiving
this necessary fluid — Dr Barton relates the instance
of a Potato which planted in a Cellar from mere
[illegible] entirely excluded, but thro a small aperture
in the roof, grew full a foot, shooting
in the direction of the light as indicated
by the [illegible] — These facts, tho' [illegible]
evinced by the varied growth which form follow
the sun and by the direction of their Flowers —

That without Light Plants are colourless
and become diseased is also certain — The invariable
consequence of the exclusion of Light from vegetables is a loss of Colour and the Disease called
Blanching or Etiolation — It is a fact that the
green Colour may be continued to the leaves
of Grapes, in a dark Cellar, by the light of a
common Lamp —

Brown

[illegible] to
[illegible] the
fact that [illegible] experiment on the
[illegible] internal anatomy of [illegible]
I shall not [illegible] the Light as contributing
[illegible] the internal Structure. And this I think
[illegible] attention to the Pulse, which

is placed in the room [illegible] increases as the [illegible]
[illegible] ends the Horizon at low water is most perfect
for a while remains so and then with time dec
Best to be more certain of the effect induced on
Animal Systems by the Stimulus of Light, I ha
a trial. The following experiment made by my [illegible]
on a young gentleman my Intimate Acquaint
Mr Jeffery Black Pale. The excitability of his
tem being greatly increased by an abstinence of
twenty four hours from every kind of stimulus
I closed the Windows of the Room in which he
had been aired during the day with a temperature
nearly equable. Thus undisturbed it perfectly [illegible]
I. flesh. Minutes after the total exclusion of
Light, I examined his Pulse, which beat with
a fullness not exceeding Fifty Pulses and with a fre
quency not exceeding Fifty three strokes in
the minute. His Spirits suffered an evident de
jection. Having several times repeated the
Examinations with the same result, I caused
light a number of Candles to be suddenly
introduced as to occasion a very considerable flash
The instantaneous effect was, as I expected, a
copious discharge of Tears. I [illegible]
[illegible] after this Illumination I [illegible]

the effect on the Pulse which was far exceed-
ing Expectation - from fifty, there it had arrived
to fifty six strokes in the minute with an
increased degree of fullness. His spirits, he
confessed, were exhilarated - Eight or ten minutes
afterwards, I renewed my examination and found
the Pulse increased to fifty eight strokes but
without any additional fullness - I afterwards
made several examinations but observed no
alteration. -

The Influence which Light exerts on the ani-
mal Spirits, evinces it Stimulant -

Dr Rush relates the account of a Gentleman
who informed him that he had spent a winter
in Lapland, during the greatest part of
which the Sun was seldom out of sight - he
experienced the effects of uncommon Health and
Spirits both of which he ascribed occasioned
by the long duration and accumulating Influence
of Light. -

So considerable are its effects on Pulse,
Increase by Spirits, proved, that the elevated and
depressed Plates of the Globe are almost in
proportion to the Splendor or obscurity of the
Solar Rays and hence we may infer and con-
clude, that those nervous Affections are generally
the Fever during the Summer - These effects

very observable among the aids generally
of stimulating effects of Light, may also
be referred from its preventing Sleep in those
Systems elevated above what Dr Rush calls the
Sleeping (Point" and increasing it in those
placed below it. Instances of a termination of
Sleep at the first Dawn of the Morning are
are many and who, in a Case of Typhus Fever
has not observed with satisfaction, the succession
of a pleasant and invigorating Morning after
the a restless and uneasy Night. The explana-
tion of the consequence of the extinction of the Light of a
common Candle, in a Case related by Dr Rush
was a deprivation of Sleep.

If other Arguments be necessary to
prove this, the succession of the Darkness of
the Night to the Light of the Day, affords an
~~over~~ incontrovertible one. So beautifully,
must appear to every observer, do all the Works
of Nature harmonize, that we cannot refrain
from the admiration of this perfection and
the acknowledgement that however opposite
one other forms may appear, yet that "each
establishes the good of the other". The Alternation
of Night and Day is one of the most
striking Instances of this. When during the
the constant application of Stimuli

such is exercise, mental and corporal, Light &c
the excitability of the System is reduced below the
pitch of excitement, in order, as is requisite for
Health, to the restoration of the equability — the
advance — the Stimulus of Light being by it
removed — the excitability suffers a little elevation;
this small elevation disposes to rest and then
the gradual abstraction of Stimuli, the excita-
bility is brought up so near to a pari with the
excitement as to reach what is termed the "Sleeping
Point" — During Sleep from the very few Stimu-
lants acting on the System, a sufficient quantity
of excitability is accumulated for the proper action
of Stimuli the ensuing Day — In this manner
Health is continued —

If then, as I think the above argument
shows, Light be a Stimulus, is it not supposing
that what in the lowest stages of Chronic Disease
Wine, Opium, Wine and all the most stimulating
remedies have been employed — no attention
been paid to the regulation of the Light and Dark
in the sick Room —

As from the want of opportunities for
practical observations on this Subject an essay
cannot fill before I beg leave to propose the following

The clock is supposed by Mr Locke to sleep with the
[illegible] also inactive during Sleep

Suggestions

In those diseases of feeble action, with the Eyelids determination or opthalmic affections, which require Stimulating remedies May not the action of Internal & Renal greatly assisted, by a full admission of Light in exciting the Systems and thus prolonging life. And as it is a fact well known to every one attendant on diseases, that a decided majority of deaths occur in the night, occasioned, no doubt principally, by the abstraction of Light. May not the employment of artificial Light in combining the Mental Stimulus so frequently, at least, to avert death?

In old chronic Opthalmia when all usual remedies have been unsuccessfully employed. Is it not highly probable that exposure to an intense Light, by creating a new Action, may be attended with some beneficial Effect?

In Mania, Gaol fever, when Stimulant remedies have been applied to some part of the Bod, at all connected with the Brain either immediately or sympathetically, Is it not probable that one Cause of the want of success of these efforts, may be the inattention paid to the proper Stimulus of the Eye, but in [illegible] the Brain [illegible] exists an intimate

tion — and is it not very presumable from the untoward effect induced on the Eyes in this Disease, that Impressions made thro' the medium of these Organs, would act more efficaciously than those made thro any other avenue?

In short in all chronic Diseases or Disease requiring the "Amulantia" but more particularly those connected with the Brain and Eye, and of these I would mention the chronic Ophthalmia Internus — Hypochondriasis or as more properly called by Dr Rush "Tetanus mania" Melancholia or more properly "Hypomania" an attention to the proper use of these Remedies might, I think, under Medical Efforts frequently more efficacious and remove in some measure that imputation commonly laid on the Profession — Uncertainty, frequently laid on the Profession — Uncertainty of proper Influence of this I claim as much in Chambers of the Diseased as the regulation of the Degrees of Heat, so universally attended to —

The Increase or diminution of it, however as of every other Stimulus, should I think, be gradual —

However in speaking of Sight in Fevers
I do not the effects of its absence. I shall not
relate other Instances, unnecessary, prefix
this Head. To the Physician the advantages de-
rivable from the employment of Darkness as a
Remedy in all Diseases, may I think, be re-
garded as appears to indicate its propriety
in a Sick Room — by the partially obscured —
in every Invalid bed — and from constant and
universal Custom, we in general, resort to it
almost unconsciously, upon first remedy —
But in this, as in many other Instances, in obey-
ing the Dictates of Nature we are natural in
to that "Ne plus ultra" beyond which if pursued
she invariably revolts — Thus which according to
the predominance of the excitability or irritation
of the System, we stimulate and elevate, so should
surprising that the improprietry of a continued
of the full Degree of Darkness in all the different
forms and stages of Disease has not been
more attended to —

As in the Treatment of all Fevers with
Cephalic Determination — of Arterial Headaches
Ophthalmia and Otalgia, its importance is
universally acknowledged and its employment
Deem it unnecessary further to

transit - In Maniacal, however, an attention to the greater or less Degree of Darkness as indicated by the Pulse should not be omitted by any one desirous of an efficacious treatment of it -

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Thus superficially have I hinted at the probable beneficial Effects of Light and Darkness in some of the different forms of Disease. The proper regulations of these, I have no doubt might greatly augment the efficacy of Blood letting and the various remedies of the Medica Medica, in preventing or alleviating the already formed, Paroxysms, of all ——

Clement &c
1809

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for

The Degree

of

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submitted

to the Examination

of

John M'Dowell, L.L.D. Provost

The

Trustees and Medical Professors

of the

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by G L Lawton

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